

Mitigating the financial effects of tuberculosis requires more than expansion of services



Reducing poverty and health inequality remains a global imperative, enshrined in the United Nation's Sustainable Development Goals. Irrespective of country of origin or residence, poorer people have increased likelihood of ill health, malnutrition, and limited access to health care.¹ Few diseases better illustrate the association between health and wealth than tuberculosis, which is the archetypal disease of poverty.

Tuberculosis is well recognised to be socially determined, and control will only be achieved through a multifaceted and holistic response that encompasses diagnosis, treatment, employment, nutrition, and housing.² The financial effects of accessing tuberculosis care, however, has only begun to garner attention in the past few decades.³

The costs of accessing care to households affected by tuberculosis include direct costs, such as those for medicines, clinics, food, and travel, and indirect costs, such as lost income. Research from Peru defined these costs as being catastrophic when they amounted to 20% or more of a tuberculosis-affected household's annual income, because they were independently associated with a person with tuberculosis from that household being lost to follow-up, dying, or having recurrent disease.⁵ WHO's End TB Strategy⁶ recognises that averting these catastrophic costs could potentially improve tuberculosis control, and mandates that "zero TB-affected households should face catastrophic costs by 2025".

In *The Lancet Global Health*, Stéphane Verguet and colleagues⁷ report a modelling study of the effects of expanding tuberculosis services on averting catastrophic costs to tuberculosis-affected households in India and South Africa. They assessed three different scenarios of tuberculosis control: improved treatment of drug-sensitive tuberculosis; improved treatment of multidrug-resistant tuberculosis; and expanded access to services (all individuals who seek care being screened for tuberculosis symptoms; South Africa only). The outcomes were compared with a base case, which assumed that coverage and treatment success rates at start of the study would be maintained at a constant from 2016 to 2035. They used extended

cost-effectiveness analysis as a complement to their model to estimate the differential effects of the scenarios across socioeconomic quintiles.

The findings suggest that aggressive expansion of tuberculosis services would avert cases of catastrophic costs of patients with drug-sensitive and multidrug-resistant tuberculosis by 5–6% and 1%, respectively, in India, and by 7–19% and 6–18%, respectively, in South Africa. The addition of improved access to tuberculosis services in South Africa would avert 5–20% of cases of catastrophic costs, although the gains would be long term and not seen for 5–10 years. The extended cost-effectiveness analysis showed that catastrophic costs were most common in the lowest income quintile (30–40% in India and 80% in South Africa), but that with service expansion this quintile would contain the highest proportion of averted cases of catastrophic costs.

The study has some limitations. First, the number of cases of catastrophic costs might have been underestimated because indirect costs were calculated from income lost while seeking diagnosis rather than throughout illness and treatment.⁵ Second, socioeconomic strata were calculated as income quintiles, which for poverty is a relatively insensitive measure compared with other multidimensional indices. Third, as acknowledged by Verguet and colleagues, their model assumed only one case of tuberculosis per household, which might have diluted the disproportionate effect of cases being clustered in the poorest households. Nevertheless, policy makers and managers in national tuberculosis programmes should heed the authors' conclusions that expansion of tuberculosis services alone would lead to only modest reductions in households affected by catastrophic costs, and that future tuberculosis control strategies should incorporate social protection to enhance their effectiveness, especially for the poorest households.

The study by Verguet and colleagues⁷ is a useful contribution to the literature. Other modelling analyses have suggested that investment in social protection along with tuberculosis prevention and treatment programmes could potentially reduce tuberculosis

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burden, especially for vulnerable groups.^{8,9} Empirical data, however, are scarce, with only one randomised controlled trial of a social protection intervention (integrating social support with conditional cash transfers) for 282 tuberculosis-affected households in 32 Peruvian shanty towns.⁹ This trial showed 29% reduction in catastrophic costs and an increase in patients' likelihood of tuberculosis treatment success.^{10,11} Much needed data are being generated by the WHO survey to measure catastrophic costs, which is currently being rolled out in various sentinel countries and could be used to refine further modelling studies like that of Verguet and colleagues. This new knowledge is being appropriately linked with interdisciplinary collaborations, including the Social Protection Action Research and Knowledge Sharing network, which aim to generate new research ideas in this underfunded area, consolidate existing evidence, and inform policy and practice.

Much remains to be done. From a broader long-term policy and practice perspective, improved delivery of health care and access to national social protection and poverty-reduction schemes and working towards universal health coverage would be likely to decrease financial effects on patients with tuberculosis and other illnesses. From a more immediate research-focused perspective, stronger evidence is needed in the following areas: the most appropriate study designs for assessing social protection for households affected by tuberculosis (eg, modelling, cluster-randomised trials, and pragmatic operational studies); the optimum interventions for delivering social protection (eg, combinations of nutritional, psychosocial, and economic support, and poverty reduction vs cost-mitigation strategies); and the differential cost-effectiveness of such interventions for groups at most risk of incurring catastrophic costs (eg, impoverished households, people with multidrug-resistant tuberculosis, or people without homes).

Verguet and colleagues' findings⁷ provide a stark reminder of the importance of a concerted global

effort to eradicate the financial effects of tuberculosis; without intervention, 20 million people—similar to the population of New Delhi—could incur tuberculosis-related catastrophic costs in India between 2016 and 2035. Thus, catastrophic costs of tuberculosis are not small change. Rather, they are a public health emergency in urgent need of attention.

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I declare no competing interests.

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